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(54) Title: METHOD FOR THE PRODUCTION OF AN ISOTROPIC POLYMERIC NETWORK

$$\frac{a(m_1 + \frac{n}{2}m_2)}{10^{26}(d+L)^3} \quad (I)$$

(57) Abstract: The present invention relates to a method for the production of an isotropic polymeric network comprising multi-functional molecules with a functionality of at least 5 by reacting in a solvent the multifunctional molecules with a coupling agent, wherein the coupling agent is present in an amount which is sufficient to couple the multifunctional molecules to at least 5 other multifunctional molecules and wherein the sum, ρ , of the amounts of the multifunctional molecules and coupling agent per unit of volume, in kg/m³, is at least equal to the value as given by expression (I) in which $a=0.2$ d = the diameter of the multifunctional molecule, including the length of the bonds to the middle of atoms of the coupling agent to which it is attached. L = the length of the coupling agent, measured between the middle of the atoms that are connected to the multifunctional molecule. m_1 = the molecular mass of the multifunctional molecule as present in the isotropic 20 polymeric network m_2 = the molecular mass of the coupling agent as present in the isotropic polymeric network n = the functionality of the multifunctional molecule ($n \geq 5$). The invention further relates to an isotropic polymeric network with a density lower than 1000 kg/m³ and a specific Young's modulus of at least 0.01 GPa.m³/kg, shaped articles hereof and the use of the isotropic polymeric network as construction material.